

limitations of the base claim and any intervening claims. Accordingly, the Applicant has added new Claim 53 in which the limitations of Claim 25 are rewritten into independent form as suggested. The Applicant thanks the Examiner for the allowance of new Claim 53. Furthermore, Claim 33 has been amended to correct a typographical error. No new matter is introduced.

Claims 1-7, 9, 21 and 22 are rejected under 35 U.S.C. §102(b) as being anticipated by David (EP 0733462). In addition, Claim 8 is rejected under 35 U.S.C. §103(a) as being unpatentable over David in view of Watson (GB 2173984). Claims 10 and 11 are rejected under Section 103(a) as being unpatentable over David. Claim 12 is rejected under Section 103(a) as being unpatentable over David in view of Hsia. Claims 23, 24, 26-31 and 33-35 are rejected under Section 103(a) as being unpatentable over David in view of Shimizu. Furthermore, Claim 32 is rejected under Section 103(a) as being unpatentable over David in view of Shimizu and Watson. Finally, Claim 36 is rejected under Section 103(a) as being unpatentable over David in view of Shimizu and Hsia. In response to the Section 102(b) and 103(a) rejections, the Applicant respectfully submits that Claims 1-12, 21-24 and 26-36 are neither anticipated nor obvious in view of the David, Watson, Hsia and Shimizu references.

The present invention, as recited in Claim 1, is a plastic article including a first plastic portion having a series of protrusions extending therefrom and adjacent to each other. A second plastic portion is molded between and over the protrusions of the first plastic portion, thereby forming a protuberance on the plastic article having a desired profile. Claim 21 is a method claim that generally parallels Claim 1.

In the present invention, articles such as flower pots, chairs, tables, etc., can be made out of plastic and include features with thickened protuberances that have a realistic resemblance to similar thickened protuberances found on articles that are formed out of conventional materials. Such features can be, for example, the thickened rim of terra cotta flower pots and particular thickened features on chairs and tables made of wood or metal. Some examples of thickened protuberances in the present invention are shown in the figures, such as the end collar rim 8 of flower pot 2 in FIG. 3, the protuberance 36 of column 30 in FIG. 11, the protuberance 41 of chair arm 40 in FIGs. 12 and 13, the protuberance 46 on furniture structure 38 in FIG. 14, and the protuberances 52a/52b of furniture structure 50 in FIG. 15.

In the embodiment of the present invention shown in FIGs. 1-3, the plastic article is a flower pot 2 and the first plastic portion is an inner pot portion 1, with the series of protrusions being fins 7 of a fin structure 11. The second plastic portion is an outer pot portion 10. The outer pot portion 10 is molded between the spaces 7a of the fins 7 as well as over the fins 7 to form a protuberance that is the thickened rim 8 of the flower pot 2.

In this embodiment, the fin structure 11 having the fins 7 allows a large flower pot 2 to be injection molded in a commercially viable manner while at the same time having a thickened peripheral rim 8 at the upper edge that has the appearance of a rim on a terra cotta pot. If the thickened peripheral rim 8 were to be molded in a single injection molding process with the thickness T (FIGs. 2 and 3) being of the magnitude shown, the rim 8 would contain too great a volume of molten plastic to be able to cool properly or quickly enough for viable manufacturing in such a manner. Injection molding, when possible, is much faster and less expensive than rotomolding. Rotomolded flower pots were previously popular due to a more realistic look than prior art injection molded pots because prior injection molding processes were not able to produce thickened rims and, therefore, had a less realistic appearance.

In the embodiment of the flower pot 2, the fins 7 provide a high surface area to thickness ratio which allows rapid cooling and eliminate the existence of a large thick volume of molten plastic which inherently has a low surface area to thickness ratio and cools slowly. The series of fins 7 can radiate heat from the molded inner pot portion 1 and provide cooling in a manner similar to a radiator. The fin structure 11 forms approximately half the structure and material for the rim 8. When the outer pot portion 10 is molded over the inner pot portion 1, an outer layer of plastic 8a covers the fin structure 11 as well as occupying or penetrating the spaces 7a between the fins 7. The plastic material of the outer pot portion 10 extends between and over the fins 7 of the fin structure 11 so that the combination of the fins 7 of fin structure 11 and the plastic of outer portion 10 combine to form a solid unitary thickened protuberance 8. The second molding process in the area of the rim 8 molds plastic material in a form that is approximately the reverse of the fin structure 11 and is also in a configuration for having a rapid cooling speed. By forming the rim 8 in two molding processes, the amount and thickness of molten plastic that needs to cool at one particular moment is limited so that cooling can occur in an acceptable amount of time.

In contrast, David discloses a flower pot with a rigid injection molded inner pot 2 and a blow molded outer shell 3 which are assembled together while still hot so that shrinkage of the materials fixes them together. Referring to FIG. 5, the inner pot 2 has a rim 2d with a single groove 2e. The outer shell 3 has an inward facing collar 3d which engages only partway into the groove 2e and extends radially outwardly away from the rim 2d. The collar 3d connects the outer shell 3 to the inner pot 2 in a manner where the walls are spaced apart. The inner pot 2 has vertical ribs 2m which extend within this space. The collar 3d of the outer shell 3 in David is not molded between and over the rim 2d of the inner pot 2 or the vertical ribs 2m to form a protuberance. Instead, the collar 3d extends radially outward from the groove 2e and rim 2d without extending over the protrusions of the rim 2d. Any protuberance of the flower pot is formed by the contour of the hollow wall of the outer shell 3 and not by the combination of the shape of the rim 2d or vertical ribs 2m and the collar 3d or outer shell 3.

Accordingly, Claims 1-7, 9, 21 and 22 are not anticipated by David since David does not teach or suggest “a second plastic portion molded between and over the protrusions of the first plastic portion, thereby forming a protuberance on the plastic article having a desired profile”, as recited in base Claim 1, or “molding a second plastic portion between and over the protrusions of the first plastic portion to form a protuberance on the plastic article of a desired profile”, as recited in base Claim 21, or that “protrusions extending from the first plastic portion are contoured to provide a general approximation of the desired profile of the protuberance”, as recited in Claim 2. Therefore, Claims 1-7, 9, 21 and 22 are in condition for allowance. Reconsideration is respectfully requested.

Watson discloses a terraced plant pot in FIG. 1 having walls of generally uniform thickness. FIG. 4 discloses that the radial inner wall 4 can be fluted in order to improve the load bearing capacity. Accordingly, Claim 8 is not obvious in view of David and Watson since neither reference, alone or in combination, teaches or suggests, “a second plastic portion molded between and over the protrusions of the first plastic portion, thereby forming a protuberance on the plastic article having a desired profile”, as recited in base Claim 1. Therefore, Claim 8 is in condition for allowance. Reconsideration is respectfully requested.

In view of the above discussion, Claims 10 and 11 are also not obvious in view of David since David does not teach or suggest “a second plastic portion molded between and over the

protrusions of the first plastic portion, thereby forming a protuberance on the plastic article having a desired profile”, as recited in base Claim 1, or that “the protrusions are fins with a zigzag pattern”, as recited in Claim 11. The zigzag pattern can be employed to increase the surface area to volume ratio of the molten plastic and speed up the cooling process. Therefore, Claims 10 and 11 are in condition for allowance. Reconsideration is respectfully requested.

Hsia discloses a portable combination chair (FIG. 1) formed of planar interlocking pieces (FIG. 2). The chair in Hsia does not have any protuberances. Accordingly, Claim 12 is not obvious in view of David and Hsia since neither reference, alone or in combination, teaches or suggests “a second plastic portion molded between and over the protrusions of the first plastic portion, thereby forming a protuberance on the plastic article having a desired profile”, as recited in base Claim 1. Therefore, Claim 12 is in condition for allowance. Reconsideration is respectfully requested.

Shimizu discloses a method of producing a composite molded article of thermoplastic resins. Referring to FIGs. 1(a)-1(c), a thermoplastic elastomer E is first molded, and then a thermoplastic rigid resin H is molded thereover. Shimizu does not teach the formation of protuberances as claimed in the present invention. Accordingly, Claims 23, 24, 26-31 and 33-35 are not obvious over David in view of Shimizu, since neither reference, alone or in combination, teaches or suggests “molding a second plastic portion between and over the protrusions of the first plastic portion to form a protuberance on the plastic article of a desired profile”, as recited in base Claim 21, or “contouring the protrusions to provide a general approximation of the desired profile of the protuberance”, as recited in Claim 26, or “forming the protrusions as fins with zigzag pattern”, as recited in Claim 35. Therefore, Claims 23, 24, 26-31 and 33-35 are in condition for allowance. Reconsideration is respectfully requested.

In view of the above arguments, Claim 32 is not obvious over David in view of Shimizu and Watson since none of the references, alone or in combination, teach or suggest “molding a second plastic portion between and over the protrusions of the first plastic portion to form a protuberance on the plastic article of a desired profile”, as recited in base Claim 21. Therefore, Claim 32 is in condition for allowance. Reconsideration is respectfully requested.

Furthermore, Claim 36 is not obvious over David in view of Shimizu and Hsia since none of the references, alone or in combination, teach or suggest “molding a second plastic portion

between and over the protrusions of the first plastic portion to form a protuberance on the plastic article of a desired profile", as recited in base Claim 21. Therefore, Claim 36 is in condition for allowance. Reconsideration is respectfully requested.

Finally new Claims 49-52 and 54-57 are also added to more particularly claim the present invention. Support for these new claims is found at least in FIGs. 2, 3, 5, 11-15 as well as on page 2, lines 4-10, page 3, lines 14-18, page 5, lines 13-17, page 6, lines 12-15, page 8, lines 3-4, page 9, lines 21-22 and page 10, line 5 through page 13, line 4 of the specification as originally filed. No new matter is introduced.

CONCLUSION

In view of the above remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned at (978) 341-0036.

Respectfully submitted,

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MARKED UP VERSION OF AMENDMENTS

Claim Amendments Under 37 C.F.R. § 1.121(c)(1)(ii)

33. (Amended) The method of Claim 31 further comprising forming the protrusions as horizontal fins.

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